REACTION LAB GUIDE

There are many types of reactions, and each type has different properties. In this lab, you will observe these reactions. Your task will be to use those observations to classify what type of reaction is happening.

Materials

PPE (Gloves, safety goggles, apron)	Waste disposal containers (one for each station)	Concentrated hydrochloric acid
Solid zinc	Solid copper	Solid sulfur
Crucibles/heat-safe dishes	Copper (II) carbonate	Solid sodium bicarbonate
Evaporating dishes	Magnesium strips	Bunsen burners
Disposable pipettes	Potassium iodide solution	Lead (II) nitrate solution
Test tube clamps	Wooden splints	Test tubes with stands
Spatulas	Tongs	

Procedures

Station 1

1. Write down observations of the reactants before running the reaction.
2. Put a chunk of zinc in the test tube. Put the test tube back in the rack.
3. Using a pipette, put hydrochloric acid into the test tube.
4. Optional: Hover an inverted test tube over the reaction. Light a splint and place it in the inverted test tube.
5. Watch what is happening and document your observations.
6. Put products in waste container. Rinse out test tube with water.

	Observations
Before the Reaction	

During and After the Reaction	

Station 2

1. Write down observations of the reactants before running the reaction.
2. Light the Bunsen burner.
3. Put a small scoop of copper (II) carbonate into the test tube and hold the test tube with the test tube holder.
4. Making sure that the test tube is held at an angle, put it in the flame of the burner. Move the test tube around the flame.
5. Write down what you observe happening.
6. Optional: Light a wooden splint in the flame. Put the lit, burning splint in the test tube. Write down what you observe happening.
7. Leave the splint at the station for the next group. Put the product from the reaction in the trash can.

	Observations
Before the Reaction	
During and After the Reaction	

Station 3

1. Write down observations of the reactants before running the reaction.
2. Light the Bunsen burner.
3. Grab a magnesium strip with tongs and place it in the fire. It will ignite.
4. When it ignites, put it on the evaporating dish. WARNING: Do not look directly at the flame. It can be very intense and damage your eyes.
5. Write down what you observe.
6. Put the product in the trash and turn off the burner before you leave.

	Observations
Before the Reaction	
During and After the Reaction	

Station 4

1. Write down observations of the reactants before running the reaction.
2. Put about 2 mL (one pipette's worth) of potassium iodide in a test tube.
3. With a different pipette, add about 2 mL of lead (II) nitrate to the test tube.
4. Write down what you are observing.
5. Put the products in the waste container and was the test tube out with lots of water.

	Observations
Before the Reaction	

During and After the Reaction	

Station 5

1. Write down observations of the reactants before running the reaction.
2. Light the Bunsen burner.
3. Put a small amount of copper in the test tube.
4. Put double as much sulfur as copper in the test tube as well. Give it a gentle shake to mix the copper and sulfur together.
5. Using test tube tongs, wave the angled test tube over the flame and allow it to burn through the entire sample.
6. When the mixture ignites, remove it from the flame and allow it to burn through the entire sample. WARNING: Do NOT take it out of the fume hood. Do not inhale the fumes. Be very careful; this is probably the most dangerous station (the ones with acid are dangerous, too).
7. Write down what you observe during and after the reaction.
8. Put the product in the waste container in the fume hood.

	Observations
Before the Reaction	
During and After the Reaction	

Station 6

1. Write down observations of the reactants before running the reaction.
2. Put about 2 mL of hydrochloric acid in the test tube.
3. Slowly add some of the powdered sodium bicarbonate to the test tube.
4. Write down the observation during the reaction.
5. Continue to add the sodium bicarbonate until your think the reaction is complete and nothing else is reacting.
6. Pour the products down the drain and rinse out the test tube with water.

	Observations
Before the Reaction	
During and After the Reaction	

Analysis

Based on your observations, identify the type (or types) of reactions each station would be and justify your answer. Also, include the complete reaction.

Station 1

Station 2

Station 3

Station 4

Station 5

Station 6

Adapted from https://www.chemedx.org/system/files/activity/types-chemical-reactions/types-chemical-reactions-student.pdf